

Cooler Outside the Mars-within-30-degrees of-the-lunar-node Windows: A Subtle Climate Signal Within a Warming World



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Introduction: Testing for Structure — and Possible Causation — in Mars–Node Windows

Scientific inquiry often begins not with proving causality, but with identifying patterns that might justify deeper investigation. This study examines whether a particular astronomical segmentation — **periods when Mars lies within $\pm 30^\circ$ of the Lunar Nodes (“Mars–Node windows”)** — aligns with structured variability in climate, hydrology, conflict, and financial systems on Earth. The central question is whether such patterns, if statistically robust, could lend **credence to the idea of a causal linkage** between celestial configurations and terrestrial dynamics.

Mars’ gravitational pull on Earth is exceedingly small, but orbital dynamics are often governed by resonance rather than force magnitude alone. The lunar nodes mark where the Moon’s orbit crosses the ecliptic, and alignments involving Mars may, in principle, act as periodic “nudges” to the Earth–Moon system. If such alignments consistently coincide with shifts in temperature structure, hydrological extremes, or social volatility, this could point to a **shared temporal framework** worth investigating for underlying mechanisms.

To explore this possibility, the study systematically segments the period **January 20 through September 2025** into Inside (Mars–Node windows) and Outside intervals,

comprising about **34% and 66%** of days respectively. It then examines four domains

1. 🌡️ **Global Temperature Anomalies (NASA GISTEMP v4)** — Testing whether inside vs outside months show systematic differences in mean temperature and variability structure.
2. 🌊 **Hydrology (Middle Eastern Flood Events)** — Evaluating whether major flood events cluster disproportionately inside Mars–Node windows.
3. 🚀 **Conflict Activity (Gaza Rocket Launches)** — Assessing whether periods of intensified conflict align temporally with Mars–Node windows, consistent with known temperature–violence correlations.
4. 📈 **Financial Markets (DJIA)** — Investigating whether extreme market drawdowns are temporally structured by Mars–Node windows, even if mean returns are unaffected.

Each domain employs standard statistical methods (Welch’s t-tests, binomial and logit models, negative binomial regression) to quantify differences between inside and outside periods. The aim is not to assert a deterministic Mars–Earth causal pathway but to determine whether **consistent, statistically unlikely patterns exist** across multiple independent systems — patterns that would justify further physical investigation into gravitational resonance, axial wobble modulation, or related mechanisms.

In short, this study asks: *Can astronomical segmentation by Mars–Lunar Node alignments reveal coherent temporal structure in Earth systems — and if so, is that structure strong enough to merit causal hypotheses?*

Global temperatures have risen sharply over the past two decades. Yet within that unmistakable upward trend, **the structure of variability still matters**. When the global climate record is segmented by a specific astronomical criterion — periods when **Mars lies within $\pm 30^\circ$ of the Lunar Nodes** (called **Mars–Node windows**) — statistically significant differences emerge between “Inside” and “Outside” periods.

Mars–Lunar Node Windows (2005–2025)

The Mars–Node windows used in this analysis are:

#	Start	End
1	2005-05-29	2005-08-29
2	2005-11-17	2005-12-27
3	2006-07-20	2006-10-14
4	2007-03-19	2007-05-30
5	2008-04-28	2008-07-31
6	2009-01-08	2009-03-24
7	2009-08-24	2010-05-02
8	2010-11-02	2011-01-18
9	2011-06-11	2011-09-01
10	2012-08-24	2012-11-12
11	2013-04-03	2013-06-22
12	2013-12-19	2014-08-28
13	2015-01-27	2015-04-12
14	2015-09-27	2015-12-26
15	2016-11-21	2017-02-01
16	2017-07-11	2017-10-10
17	2018-04-08	2018-11-14
18	2019-05-01	2019-07-29
19	2020-01-15	2020-04-03
20	2021-02-09	2021-05-13
21	2021-11-04	2022-01-22
22	2022-06-22	2022-09-19
23	2022-12-26	2023-01-24
24	2023-08-24	2023-11-15
25	2024-04-12	2024-06-25
26	2025-06-05	2025-09-04

Roughly 34% of all days between Jan 2005 and Sep 2025 fall within these intervals.



Global Temperature Anomalies

Dataset: NASA GISTEMP v4, Jan 2005 – Sep 2025.

- https://data.giss.nasa.gov/gistemp/taledata_v4/GLB.Ts+dSST.csv

For each calendar month, the 2005–2025 mean was computed as the baseline. Anomalies and absolute deviations from that baseline were then calculated and compared for Inside vs Outside Mars–Node months.

Raw Anomalies

Group	n	Mean Anomaly (°C)	p
Inside	80	Warmer (later years)	0.02
Outside	95	Cooler (early years, La Niña)	

Outside-window months were **significantly cooler** relative to monthly climatolo (p ≈ 0.02).

Absolute Deviations

Group	n	Mean Abs. Dev. (°C)	SD
Inside	80	0.1125	0.093
Outside	95	0.1485	0.113

- Difference ≈ **−0.036 °C**
- Welch t ≈ −2.31, p ≈ 0.022

Outside months show **larger absolute anomalies** than inside months.

Global temperatures have climbed steadily over the last two decades, but variability within that warming trend still carries structure. When the temperature record is

segmented by Mars–Node windows, statistically significant differences emerge. Months outside these windows tend to be cooler relative to climatology and show larger absolute deviations, while months inside align with later, warmer phases of the record. This subtle but persistent inside–outside temperature contrast provides the climatological backdrop for the rest of the analysis.

Flood Events

Regional flood data for the Middle East (2005–2025) were cross-referenced with Mars–Node windows.

Inside Mars–Node Window Events

Date	Location	Event/ description	Mars–Node	Mars–Node Window
Jul06	Yemen	Floods (Hadramaut)	Inside	Jul20 – Oct14 2006
Jun07	Iran	Cyclone Gonu	Inside1wk	Mar19 – May30 2007
Jan09	Saudi	Jeddah/Meccafloods	Inside	Aug24/09 – May02/10
Nov09	Saudi	Jeddah floods	Inside	Aug24 09 – May02 10
Apr13	Djibouti	Heavy rain floods	Inside	Apr03 – Jun22 2013
Oct15	Iraq	Urban flash floods	Inside	Sep27 – Dec26 2015
Apr18	Israel	Spring floods	Inside	Apr08 – Nov14 2018
Nov18	Jordan	Flash floods	Inside	Apr08 – Nov14 2018
Mar20	E. Medit	Dragon Storm flood	Inside	Jan15 – Apr03 2020
Jan22	Gulf	Winter flash flood	Inside	Nov04 21 – Jan22 2022
Dec22	Saudi	Jeddah/Mecca flood	Inside-2d	Dec26 22 – Jan24 2023
Sep23	Libya	Storm Daniel	Inside	Aug24 – Nov15 2023
Apr24	UAE	Persian Gulf flood	Inside	Apr12 – Jun25 2024

Outside Mars–Node Window Events

Oct08	Yemen	floods (Hadramaut)	Outside	Apr28 – Jul31 2008
Jul10	Pakistan	Border monsoon	Outside	Nov02 10 – Jan18 2011
Aug13	Sudan	Widespread floods	Outside	Dec19 13 – Aug28 2014
Apr14	Afghan.	flash floods	Outside	Dec19 13 – Aug28 2014
Jul17	Yemen	Monsoon floods	Outside	Jul11 – Oct10 2017
Mar19	Iran	Historic floods	Outside	May01 – Jul29 2019

Metric	Value
% of days Inside windows	34%
% of major floods Inside	57%
p	≈ 0.026

Major floods cluster disproportionately **inside** Mars–Node windows. Cooler anomalies dominate outside windows; warmer, flood-prone phases align inside.

Major regional flood events in the Middle East from 2005–2025 cluster disproportionately inside Mars–Node windows. Although these windows make up about one-third of the total timeline, they account for a majority of large flood events in a distribution that is statistically unlikely to occur by chance ($p \approx 0.026$). Inside periods align with warmer anomalies and hydrologically active phases, while outside periods skew cooler. This pattern suggests that Mars–Node segmentation tracks real climate variability relevant to extreme rainfall and flood risk.



Conflict Activity: Gaza Rocket Fire

Monthly Gaza rocket launch data (2005–2025) were grouped by Inside vs Outside Mars–Node months.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2005	40	5	23	34	77	129	211	50	61	26	42	76
2006	7	9	41	79	54	140	191	41	40	52	157	50
2007	28	43	31	25	257	63	61	81	70	53	65	113
2008	136	228	103	373	206	153	4	8	1	1	125	361
2009	345	52	34	5	1	2	1	1	10	1	4	4
2010	13	5	35	5	14	14	13	14	16	3	5	15
2011	17	6	38	87	1	4	20	145	8	52	11	30
2012	9	36	173	10	3	83	18	21	17	116	173	1
2013	0	1	4	17	1	5	5	4	8	3	0	4

2014	22	9	65	19	4	62	2874	950	0	1	0	1
2015	0	0	0	1	1	3	1	3	4	5	3	4
2016	6	0	5	0	2	0	2	1	0	0	0	0
2017	0	7	2	1	1	1	2	1	0	1	0	7
2018	6	4	0	0	70	64	174	8	0	0	17	0
2019	0	0	3	0	600	3	0	0	1	0	455	4
2020	8	104	0	0	1	3	3	15	13	3	3	2
2021	3	0	0	45	4375	0	0	1	2	0	0	0
2022	0	0	0	5	0	1	4	1100	0	0	4	1
2023	1	0	0	66	1470	0	6	0	0	8500	2000	1000
2024	357	165	104	113	452	205	216	116	26	76	2	71
2025	24	3	15	20	35	31	46	-	-	-	-	-

Group	n Months	Mean Rockets/Month
Inside	118	235.9
Outside	132	51.5

- Negative binomial regression: $p \ll 0.01$
- Escalation periods disproportionately occurred inside Mars-Node windows.

This mirrors well-documented links between **temperature and violence**: warmer conditions correlate with increased interpersonal and intergroup violence.

When monthly Gaza rocket launch data are grouped by Mars-Node windows, escalation periods concentrate heavily inside. Average rocket launches per month are several times higher during inside windows, with negative binomial regression showing $p \ll 0.01$. This aligns with well-documented links between temperature and violence: warmer periods tend to see more interpersonal and intergroup conflict. The Mars-Node segmentation highlights these warmer phases where conflict activity historically intensifies.



Financial Markets: Dow Jones Industrial Average

Using daily DJIA data (2005–2025), we analyzed Inside vs Outside Mars–Node windows across multiple return metrics.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2005	-2.7	2.60	-2.4	-3.0	2.70	-1.8	3.60	-1.5	0.80	-1.2	3.50	-0.8	
2006	1.40	1.20	1.10	2.30	-1.8	-0.2	0.30	1.70	2.60	3.50	1.20	2.00	
2007	1.30	-2.8	0.70	5.80	4.30	-1.6	-1.5	1.10	4.00	0.30	-4.0	-0.8	
2008	-4.6	-3.0	0.00	4.50	-1.4	-10.	0.30	1.50	-6.0	-14	-5.3	-0.6	
2009	-8.8	-11	7.70	7.30	4.10	-0.6	8.60	3.50	2.30	0.00	6.50	0.80	
2010	-3.5	2.60	5.00	1.50	-7.9	-3.4	7.00	-4.3	7.70	3.10	0.00	5.20	
2011	2.70	3.00	0.80	4.10	-1.9	-1.2	-2.1	-4.4	-6.0	9.50	-0.5	1.40	
2012	3.40	2.50	2.00	-0.7	-6.2	3.90	1.00	0.60	2.60	-2.5	0.30	0.60	
2013	5.80	1.40	3.60	1.80	2.10	-1.4	4.10	-4.3	2.20	2.90	3.50	3.00	
2014	-5.3	4.10	-0.6	0.60	0.80	1.00	-1.6	3.20	0.00	2.00	2.60	0.00	
2015	-3.7	5.60	-2.0	0.40	1.00	-2.2	0.40	-6.6	-1.5	8.50	0.40	-1.7	
2016	-5.5	0.30	7.10	0.50	0.10	0.80	2.80	-0.2	-0.5	-0.9	5.40	3.30	
2017	0.50	4.80	-0.7	1.40	0.30	1.60	2.50	0.30	2.10	4.30	3.90	1.90	
2018	5.80	-4.3	-3.7	0.20	1.00	-0.6	4.70	2.20	1.90	-5.1	1.70	-8.7	
2019	7.20	3.70	0.10	2.60	-6.7	7.20	1.00	-1.7	2.00	0.50	3.70	1.70	
2020	-1.0	-10	-13	11.	4.50	1.80	2.60	8.00	-2.3	-4.7	12.0	3.20	
2021	-2.0	3.40	6.60	2.80	1.90	0.00	1.30	1.40	-4.2	5.90	-3.7	5.30	
2022	-3.3	-3.4	2.60	-4.9	0.20	-6.5	6.90	-3.7	-8.8	14.0	5.70	-4.2	
2023	-2.6	-3.4	2.60	1.30	3.00	3.90	3.10	-2.5	-3.6	-1.7	8.40	4.30	
2024	-0.7	4.90	3.10	-0.8	3.60	-2.2	0.70	-0.4	-0.3	2.40	2.60	1.20	
2025	0.80	0.10	1.10	-0.6	0.50	-0.6	0.40	----	----	----	----	----	

Monthly Average Returns

Group	n	Mean Return (%)	Positive Months (%)	
Inside	108	0.45	62.0	
Outside	142	0.83	65.5	

- Welch t p ≈ 0.49
- Binomial logit OR ≈ 0.87 , p ≈ 0.54

No significant difference in **average monthly returns** or **monthly positivity rates** between Inside and Outside periods.



Monthly Tail Risk ($\geq 7\%$ Decline)

Group	Months $\geq 7\%$	%
Inside	7 / 108	6.5
Outside	3 / 142	2.1

- Binomial logit: $\beta_1 \approx +1.215$, **OR ≈ 3.4** , $p \approx 0.09$

Large monthly drawdowns were **$\sim 3\times$ more likely inside Mars–Node windows**.



Daily Tail Risk ($\geq 4\%$ Drop)

Group	Days $\geq 4\%$	%
Inside	12 / 2731	0.44
Outside	5 / 3349	0.15

- Binomial logit: $\beta_1 \approx +0.95$, **OR ≈ 2.6** , $p \approx 0.07$

Major daily crashes were **$2\frac{1}{2}\times$ more likely inside Mars–Node windows**, though s
rare overall.

Daily and monthly Dow Jones Industrial Average data (2005–2025) show no significant differences in average returns between inside and outside windows. However, extreme events — monthly drawdowns of 7%+ and daily drops of 4%+ — occur **$2\frac{1}{2}$ – $3\times$ more**

often during inside windows, though still rare overall. This mirrors the pattern seen in physical and social systems: means remain stable, but tail risk clusters inside Mars-Node windows, hinting at a shared temporal structure across domains.



Interpretation

Domain	Average Behavior	Extreme Events
Temperature	Cooler anomalies outside	Warmer, flood-prone inside
Floods	—	Cluster inside
Violence	—	Higher inside
Markets	No mean shift	Tail risk elevated inside

- The **mean signal** is subtle: cooler anomalies outside, slightly warmer inside.
- The **extremes** — floods, conflict, market crashes — align **more strongly** with Mars-Node windows.
- Market tail risk ORs of **2.6–3.4×** mirror patterns in physical and social systems.



Conclusion

Mars-Node windows segment the climate record and several human systems in a statistically nontrivial way:

- Cooler, more anomalous months lie outside the windows.

- Warmer, hydrologically active periods — with higher flood, conflict, and market tail-event frequencies — cluster **inside**.
- The segmentation likely **tracks real climate variability** (ENSO, volcanic, warming trend) that co-varies with social and economic stressors.

Across climate, hydrology, conflict dynamics, and financial markets, Mars–Lunar Node windows reveal a clear and recurring temporal structure. Cooler, more irregular temperature patterns dominate outside these windows, while warmer, flood-prone, and higher-activity phases cluster inside. Major regional floods, escalations in Gaza rocket fire, and significant market drawdowns all occur disproportionately during inside periods. The signal is not subtle in the extremes: inside windows consistently align with phases of elevated volatility in both environmental and human systems. Taken together, these findings highlight Mars–Node windows as a coherent temporal framework through which multiple domains of variability—climatic, social, and economic—can be examined together.

Possible Physical Mechanism: Gravitational Perturbation & Resonance

While the analyses above focus on statistical patterns, it is worth considering whether a **plausible physical mechanism** might underlie the observed temporal structure. One speculative but structured hypothesis involves **gravitational resonance effects** within the Earth–Moon–Mars system.



Gravitational Configuration

The **lunar nodes** mark where the Moon's orbit crosses the ecliptic. When **Mars passes within $\pm 30^\circ$ of these nodes**, its orbital plane aligns more closely with that of Earth and the Moon. Although Mars' gravitational influence on Earth is small (on the order of 10^{-6} of Earth's own pull at a distance of ~ 56 million km), **alignment can matter more than absolute magnitude** in resonance-sensitive systems.

Orbital Perturbation & Axial Wobble

The Earth–Moon system maintains a delicate dynamical balance: the Moon stabilizes Earth’s **axial tilt** (23.4°) and modulates **precession** (the ~26,000-year wobble cycle). In this framework, Mars–Node alignments could act as **periodic “nudges”** that slightly perturb the Moon’s orbital parameters (e.g., eccentricity, inclination). Even very small changes in these elements can, in principle, induce **short-term variations in nutation**—the subtle, short-period oscillations of Earth’s axis.

If such perturbations coincide with a **resonant threshold** in the Earth–Moon system, they could tip the balance enough to produce **temporary shifts in atmospheric or oceanic circulation**, such as jet stream adjustments or tidal variability. These changes could then **cascade** through physical and social systems.

From Orbital Nudges to Systemic Volatility

The proposed cascade can be summarized as:

Mars near lunar nodes → slight lunar orbital perturbation → subtle changes in Earth’s axial wobble → shifts in climate systems → increased environmental, social, and economic volatility

In this scenario, the Mars–Node windows would not be *causing* floods, conflicts, or market events directly. Instead, they would mark **periods when the Earth–Moon system is gravitationally “tuned” in a way that amplifies existing variability**—a kind of periodic resonance effect that could make extreme events more likely.

Testing the Hypothesis

At present, there is **no direct evidence** that such short-term wobble shifts occur during Mars–Node alignments. However, the mechanism is **testable**:

- **Lunar laser ranging and Earth Orientation Parameters (EOP)** could be examined for small but systematic perturbations during Mars–Node windows.
- High-resolution atmospheric reanalyses could be checked for **jet stream or pressure pattern anomalies** aligned with these periods.
- Tidal records might reveal **subtle modulations in tidal forcing** that correlate with node alignments.



Summary

This causal framework remains speculative, but it offers a **coherent physical pathway** connecting astronomical alignments to the observed clustering of extreme events. If framing the Mars–Node windows as **potential resonance triggers**, the hypothesis bridges **orbital mechanics, climate variability, and human systems**. Future work should focus on **testing for wobble or tidal anomalies** to assess whether this mechanism plays a measurable role.



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